AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Canceled)

2. (Previously Presented) The engine control system of claim 5 wherein said resonance geometric configurations include a tuned configuration and a detuned configuration.

3. Please cancel Claim 3.

4. (Currently Amended) The engine control system of claim ~~3~~ 5 further comprising a commanded load input that generates a load command, wherein said controller determines whether said engine load is one of said partial load and said full load based on said load command.

5. (Currently Amended) An engine control system that controls operation of an internal combustion engine, comprising:

an intake manifold that is adjustable to a plurality of resonance geometric configurations; and

a controller that monitors engine operation, that classifies engine operation in one of a plurality of operational categories, ~~and~~ that adjusts said intake manifold to a

resonance geometric configuration associated with said one of a plurality of ~~operational category~~ operational categories,

wherein said controller adjusts said intake manifold to a first resonance geometric configuration associated with a first operational category ~~when~~ in which an engine load is at a partial load, ~~and~~ adjusts said intake manifold to a second resonance geometric configuration associated with a second operational category ~~when~~ in which said engine load is at full load and adjusts said intake manifold to a third resonance geometric configuration associated with a third operation category in which said engine load is at a partial load and an engine speed is less than a threshold engine speed, and

wherein said first resonance geometric configuration is the same as said third resonance geometric configuration and second geometric resonance configuration is different than said first and third resonance geometric configurations.

6. Please cancel Claim 6.

7. (Currently Amended) The engine control system of claim ~~6~~ 5 further comprising an engine speed sensor that measures said engine speed, wherein said controller compares said engine speed to a threshold engine speed to determine whether said engine speed is one of a high engine speed and a low engine speed.

8. (Original) The engine control system of claim 7 wherein said threshold engine speed is an engine speed at which a volumetric efficiency of said engine is constant regardless of said resonance geometric configuration.

9. (Original) The engine control system of claim 8 wherein said threshold engine speed is based on engine load.

10. (Currently Amended) The engine control system of claim ~~7~~ 5 wherein:

~~said controller adjusts said intake manifold to said a first third resonance geometric configuration if said engine load is said partial load and said engine speed is less than said threshold engine speed~~,

said controller adjusts said intake manifold to ~~said~~ a ~~second~~ fourth resonance geometric configuration if said engine load is said partial load and said engine speed is greater than said threshold engine speed,

said controller adjusts said intake manifold to ~~said~~ a ~~second~~ fifth resonance geometric configuration if said engine load is said full load and said engine speed is greater than said threshold engine speed; and

said controller adjusts said intake manifold to ~~said~~ a ~~second~~ sixth resonance geometric configuration if said engine load is said full load and said engine speed is less than said threshold engine speed,

wherein said first, third and fifth resonance geometric configurations are the same, and

wherein said second, fourth and sixth resonance geometric configurations are the same and are different from said first, third and fifth resonance geometric configurations.

11. (Currently Amended) The engine control system of claim 5 further comprising:

a tuning valve that is movable between an open position to provide said first, third and fifth resonance geometric configurations and a closed position to divide said intake manifold into multiple plenums and to provide said second, fourth and sixth resonance geometric configurations; and

an actuator that manipulates said tuning valve based on a signal from said controller.

12. (Canceled)

13. (Currently Amended) The method of claim ~~12~~ 17 wherein said resonance geometric configurations include a tuned configuration and a detuned configuration.

14. Please cancel Claim 14.

15. Please cancel Claim 15.

16. (Previously Presented) The method of claim 17 wherein said step of adjusting said intake manifold comprises:

moving a tuning valve to an open position to provide said first resonance geometric configuration; and

moving a tuning valve to a closed position to divide said intake manifold into multiple plenums and to provide said second resonance geometric configuration.

17. (Currently Amended) A method for controlling an internal combustion engine having an intake manifold that is adjustable to a plurality of acoustic resonance geometric configurations, comprising:

defining a plurality of operational categories for said engine;

defining a resonance geometric configuration associated with each of said operational categories;

classifying engine operation in an operational category of said operational categories;

adjusting said intake manifold to said resonance geometric configuration ~~defined for said operational category~~ associated with said one of a plurality of operational categories;

determining whether an engine load is one of a partial load and a full load based on a load command;

adjusting said intake manifold to a first resonance geometric configuration if said engine load is ~~said~~ at a partial load;

adjusting said intake manifold to a second resonance geometric configuration if said engine load is ~~said~~ at a full load; and

adjusting said intake manifold to a third resonance geometric configuration if said engine load is at a partial load and an engine speed is less than a threshold engine speed,

wherein said first resonance geometric configuration is the same as said third resonance geometric configuration, and

wherein said second geometric configuration is different than said first and third resonance geometric configurations.

18. (Currently Amended) The method of claim 17 further comprising:

measuring an engine speed;

comparing said engine speed to a threshold engine speed;

~~adjusting said intake manifold to said first resonance geometric configuration when said engine load is said partial load and said engine speed is less than said threshold engine speed;~~

adjusting said intake manifold to ~~said~~ a ~~second~~ fourth resonance geometric configuration when said engine load is ~~said~~ at a partial load and said engine speed is greater than said threshold engine speed;

adjusting said intake manifold to ~~said~~ a ~~first~~ fifth resonance geometric configuration when said engine load is ~~said~~ at a full load and said engine speed is greater than said threshold engine speed; and

adjusting said intake manifold to said second resonance geometric configuration when said engine load is ~~said~~ at a full load and said engine speed is less than said threshold engine speed,

wherein said first, third and fifth resonance geometric configurations are the same, and

wherein said second, fourth and sixth resonance geometric configurations are the same and are different from said first, third and fifth resonance geometric configurations.

19. (Original) The method of claim 18 wherein said threshold engine speed is an engine speed at which a volumetric efficiency of said engine is constant regardless of said resonance geometric configuration.

20. (Original) The method of claim 19 wherein said threshold engine speed is based on engine load.

21. (Canceled)

22. (Currently Amended) The engine control system of claim 25 wherein said first ~~and~~, second, and third resonance geometric configurations include a tuned configuration and a detuned configuration.

23. Please cancel Claim 23.

24. (Currently Amended) The engine control system of claim ~~23~~ 25 wherein said controller determines whether said engine load is one of said partial load and said full load based on said load command.

25. (Currently Amended) An engine control system that controls operation of an internal combustion engine, comprising:

a load input that generates a load command signal;

an intake manifold that is adjustable to a plurality of resonance geometric configurations and that includes:

a tuning valve that is adjustable to provide a first resonance geometric configuration, ~~and~~ a second resonance geometric configuration and a third resonance geometric configuration;

an actuator that manipulates a position of said tuning valve; and

a controller that monitors engine operation, that classifies engine operation in one of a plurality of operational categories based on said load command signal and that signals said actuator to provide one of said first and second resonance geometric configurations wherein said controller adjusts said intake manifold to said first resonance geometric configuration when an engine load is at partial load ~~and~~ ,adjusts said intake manifold to said second resonance geometric configuration when said engine load is at full load and adjusts said intake manifold to said third resonance geometric configuration when said engine load is at partial load and an engine speed is less than a threshold engine speed, and

wherein said first resonance geometric configuration is the same as said third resonance geometric configuration and said second resonance geometric configuration is different than said first and third geometric configurations.

26. Please cancel Claim 26.

27. (Currently Amended) The engine control system of claim ~~26~~ 25 further comprising an engine speed sensor that measures said engine speed, wherein said controller compares said engine speed to a threshold engine speed to determine whether said engine speed is one of a high engine speed and a low engine speed.

28. (Original) The engine control system of claim 27 wherein said threshold engine speed is an engine speed at which a volumetric efficiency of said engine is constant regardless of said resonance geometric configuration.

29. (Original) The engine control system of claim 28 wherein said threshold engine speed is based on engine load.

30. (Currently Amended) The engine control system of claim 27 wherein said controller ~~adjusts said intake manifold to said first resonance geometric configuration if said engine load is said partial load and said engine speed is less than said threshold engine speed,~~ adjusts said intake manifold to ~~said~~ a ~~second~~ fourth resonance geometric configuration if said engine load is said partial load and said engine speed is greater than said threshold engine speed, adjusts said intake manifold to ~~said~~ a ~~second~~ fifth resonance geometric configuration if said engine load is said full load and said engine speed is greater than said threshold engine speed and adjusts said intake manifold to ~~said~~ a ~~second~~ sixth resonance geometric configuration if said engine load is said full load and said engine speed is less than said threshold engine speed.

31. (Currently Amended) The engine control system of claim 25 wherein said tuning valve is a discrete position tuning valve that is movable between an open position to provide said first, third and fifth resonance geometric configurations and a closed position to divide said intake manifold into multiple plenums and to provide said second, fourth and sixth resonance geometric configurations.